

Application Number 10/540659  
Response to the Office Action dated January 26, 2009

### REMARKS

Favorable reconsideration of this application is requested in view of the following remarks.

Claims 18 and 21 have been amended as supported by the specification at page 5, line 22 – page 6, line 10. Claim 20 has been amended as supported by the specification at page 5, lines 4-14 and page 21, lines 8-21. Claim 21 has been further amended editorially.

The specification has been objected to because of informalities. However, table 5 at page 24 was amended during the PCT international phase on June 23, 2005. Accordingly, this objection should be withdrawn.

Claims 18-29 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Choi et al. (U.S. Patent No. 5,554,684) in view of Peters et al. (U.S. Patent No. 4,965,337), Hawley's Condensed Chemical Dictionary (14<sup>th</sup> Edition), and Matsumoto et al. (U.S. Patent No. 6,100,365). Applicants respectfully traverse this rejection.

This rejection relied on Peters' disclosure of a combination of BPDA and 4,4'-sulfonyl dianiline (SDAN) and that of BPADA and SDAN having different glass transition temperatures from each other (see coln. 13, lines 5-23). Choi suggests use of a combination of dianhydrides in the polyimide coating and merely lists BPDA and BPADA among others (see coln. 2, line 27 – coln. 3, line 15). However, both Peters and Choi fail to recognize the particular combination of BPDA and BPADA and the particular molar ratio of a combination of dianhydrides. In particular, Peters and Choi fail to recognize that the molar ratio of the combination of BPDA and BPADA of 9:1 to 5:5 as claims 18 and 21 requires provides high transparency and toughness to the polyimide coating film (see tables 5 and 6 at pages 24-25, page 9, lines 2-7, and page 25, lines 1-5 of the specification). Accordingly, the discovery of an optimum molar ratio of the combination of BPDA and BPADA is not obvious (see *In Ex parte Whalen II*, at page 14,

Application Number 10/540659  
Response to the Office Action dated January 26, 2009

lines 3-9 at <http://www.uspto.gov/web/offices/dcom/bpai/prec.htm> citing *In re Antonie*, 559 F.2d 618, 620 (CCPA 1977)).

In addition, Hawley's Condensed Chemical Dictionary discloses propylene carbonate as a plasticizer. However, the cyclic compound of claims 18 and 21 is present in an amount to prevent discoloration of the polyimide coating film. By including the carbonyl group of the cyclic compound, which has a larger dipole moment and dielectric constant than a polar organic solvent, the cyclic compound is substituted for the polar organic solvent, and discoloration is prevented (see page 6, lines 2-10 of the specification). Accordingly, Hawley's Condensed Chemical Dictionary would not suggest using the cyclic compounds in the amounts required by claim 1 with Choi.

Matsumoto discloses a soluble polyimide resin (see abstract). Matsumoto, however, fails to remedy the deficiencies of Choi, Peters, and Hawley's Condensed Chemical Dictionary.

Accordingly, claims 18 and 21 are distinguished from Choi in view of Peters, Hawley's Condensed Chemical Dictionary, and Matsumoto, and this rejection should be withdrawn.

Claim 20 has been rejected under 35 U.S.C. 112, first paragraph, as not complying with the written description requirement. Applicants respectfully traverse this rejection.

Claim 20 has been amended to include the term "polymerizing a monomer" instead of "oligomerizing polyamic acid", and this rejection should be withdrawn. The disclosed polymerization includes two steps: in one step, a monomer is polymerized to form a precursor; and in another step, the precursor is polymerized to form a polymer. Claim 20 relates to the step where the monomer is polymerized to form a precursor. In any event, an oligomer is recognized as a polymer that includes a relatively small number of units. A viscosity for the polyimide precursor liquid composition of claim 20 on the order of 205 poise (working example 1 of the specification) would be recognized as reflecting a relatively small number of units in the polyimide precursor liquid composition, and defining the polyamic acid polymer as an oligomer is also proper (see

Application Number 10/540659  
Response to the Office Action dated January 26, 2009

page 15, lines 22-25). Thus, this rejection should be withdrawn. Applicants do not concede the correctness of the rejection.

In view of the above, Applicants request reconsideration of the application in the form of a Notice of Allowance.



Dated: April 27, 2009

DPM/JAL/my/gmd

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